We Claim:

1. In a method to modulate exogenous gene expression comprising contacting an ecdysone receptor complex comprising:

a) a DNA binding domain;

b) a ligand binding domain;

c) a transactivation domain; and

d) a ligand;

with a DNA construct comprising:

a) the exogenous gene; and

b) a response element;

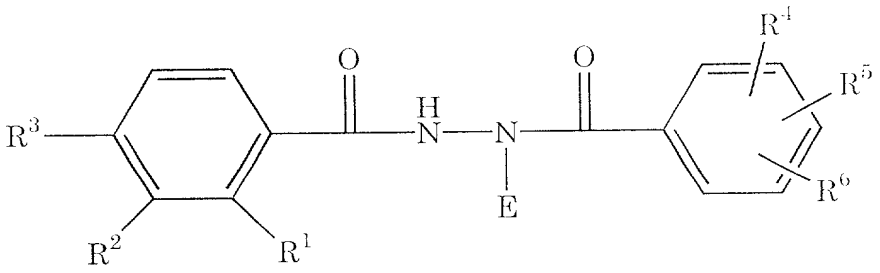
wherein:

a) the exogenous gene is under the control of the response element; and

b) binding of the DNA binding domain to the response element in the presence of the ligand results in activation or suppression of the gene;

the improvement comprising:

selecting the ligand from a compound of the formula:



wherein:

E is a (C_4-C_6)alkyl containing a tertiary carbon or a cyano(C_3-C_5)alkyl containing a tertiary carbon;

R^1 is H, Me, Et, i-Pr, F, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, OMe, OEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

R^2 is H, Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, OMe, OEt, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr,

SCN, $SCHF_2$, SOMe, NH-CN, or joined with R^1 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^3 is H, Et, or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^4, R^5, and R^6 are independently H, Me, Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

provided that:

a) when R^1 is Me and R^2 is OMe;

then R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, or 3,5-di-F;

b) when R^1 is Me and R^2 is OEt;

then R^3 is H and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl ;

c) when R^1 is Et and R^2 is OMe or OEt;

then R^3 is H and the combination R^4, R^5, and R^6 is:

i) 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl, 3-OMe, 2-Cl-5-Me, 2-Br-5-Me, 2-Cl, 2-Br, or 3-Me; or

ii) R^6 is H, R^4 is Me, and R^5 is Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

d) when R^1 is i-Pr;

then R^2 is OMe, or OEt; R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me;

e) when R^3 is Et;

then R^2 is H, R^4 is F or Cl, and the combination R^4, R^5, and R^6 is 3,5-di-Me;

f) when R^2 and R^3, together with the phenyl carbons to which they are attached, form an ethylenedioxy ring;
then R^1 is Me or Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

g) when R^2 and R^3, together with the phenyl carbons to which they are attached, form a dihydrofuryl or dihydropyryl ring;
then R^1 is Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

h) when R^1 is formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;
then R^2 is OMe or OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me; and

i) when R^2 is Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, or NH-CN;
then R^1 is Et, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me.

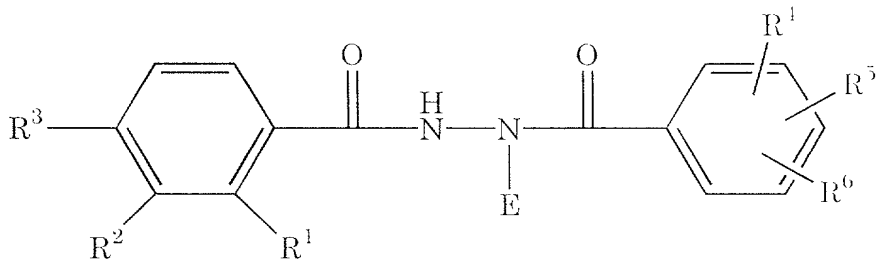
2. A method to modulate exogenous gene expression comprising contacting an ecdysone receptor complex comprising:

a) a DNA binding domain;

b) a ligand binding domain;

c) a transactivation domain; and

d) a ligand of the formula:



wherein:

E is a (C_1-C_6)alkyl containing a tertiary carbon or a cyano(C_3-C_5)alkyl containing a tertiary carbon;

R^1 is H, Me, Et, i-Pr, F, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, OMe, OEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

R^2 is H, Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, OMe, OEt, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, NH-CN, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^3 is H, Et, or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^4, R^5, and R^6 are independently H, Me, Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

provided that:

a) when R^1 is Me and R^2 is OMe;
then R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, or 3,5-di-F;

b) when R^1 is Me and R^2 is OEt;
then R^3 is H and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl ;

c) when R^1 is Et and R^2 is OMe or OEt;
then R^3 is H and the combination R^4, R^5, and R^6 is:

i) 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl, 3-OMe, 2-Cl-5-Me, 2-Br-5-Me, 2-Cl, 2-Br, or 3-Me; or

ii) R^6 is H, R^4 is Me, and R^5 is Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

d) when R^1 is i-Pr;

then R^2 is OMe, or OEt; R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me;

e) when R^3 is Et;

then R^2 is H, R^1 is F or Cl, and the combination R^4, R^5, and R^6 is 3,5-di-Me;

f) when R^2 and R^3, together with the phenyl carbons to which they are attached, form an ethylenedioxy ring;

then R^1 is Me or Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

g) when R^2 and R^3, together with the phenyl carbons to which they are attached, form a dihydrofuryl or dihydropyryl ring,

then R^1 is Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

h) when R^1 is formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

then R^2 is OMe or OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me; and

i) when R^2 is Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, or NH-CN;

then R^1 is Et, R^3 is H, the combination R^4, R^5, and R^6 is 3,5-di-Me;

with a DNA construct comprising:

a) the exogenous gene; and

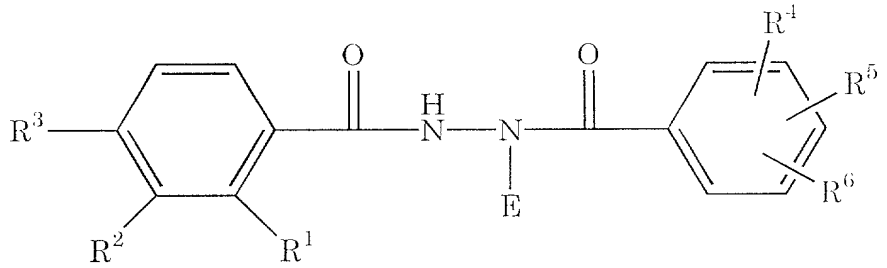
b) a response element;

wherein:

a) the exogenous gene is under the control of the response element; and

b) binding of the DNA binding domain to the response element in the presence of the ligand results in activation or suppression of the gene.

3. A method to modulate the expression of one or more exogenous genes in a subject, comprising administering to the subject an effective amount of a ligand of the formula:



wherein:

E is a (C_4-C_6)alkyl containing a tertiary carbon or a cyano(C_3-C_5)alkyl containing a tertiary carbon;

R^1 is H, Me, Et, i-Pr, F, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, OMe, OEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

R^2 is H, Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, OMe, OEt, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, NH-CN, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^3 is H, Et, or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the

oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^1, R^5, and R^6 are independently H, Me, Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

provided that:

a) when R^1 is Me and R^2 is OMe;
then R^3 is H; and the combination R^1, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, or 3,5-di-F;

b) when R^1 is Me and R^2 is OEt;
then R^3 is H and the combination R^1, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl ;

c) when R^1 is Et and R^2 is OMe or OEt;
then R^3 is H and the combination R^1, R^5, and R^6 is:
i) 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl, 3-OMe, 2-Cl-5-Me, 2-Br-5-Me, 2-Cl, 2-Br, or 3-Me; or
ii) R^6 is H, R^4 is Me, and R^5 is Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

d) when R^1 is i-Pr;
then R^2 is OMe, or OEt; R^3 is H; and the combination R^1, R^5, and R^6 is 3,5-di-Me;

e) when R^3 is Et;
then R^2 is H, R^1 is F or Cl, and the combination R^1, R^5, and R^6 is 3,5-di-Me;

f) when R^2 and R^3, together with the phenyl carbons to which they are attached, form an ethylenedioxy ring;
then R^1 is Me or Et and the combination R^1, R^5, and R^6 is 3,5-di-Me;

g) when R^2 and R^3, together with the phenyl carbons to which they are attached, form a dihydrofuryl or dihydropyryl ring;
then R^1 is Et and the combination R^1, R^5, and R^6 is 3,5-di-Me;

h) when R^1 is formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;
then R^2 is OMe or OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me; and

i) when R^2 is Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, or NH-CN;
then R^1 is Et, R^3 is H, the combination R^4, R^5, and R^6 is 3,5-di-Me;

wherein the cells of the subject contain:

a) an ecdysone receptor complex comprising:
   1) a DNA binding domain;
   2) a binding domain for the ligand; and
   3) a transactivation domain; and

b) a DNA construct comprising:
   1) the exogenous gene; and
   2) a response element; and

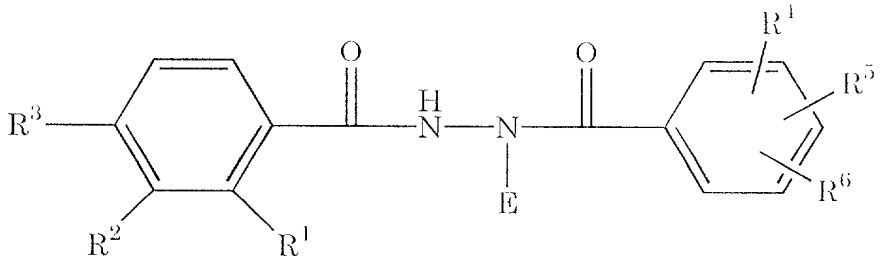
wherein:

a) the exogenous gene is under the control of the response element; and

b) binding of the DNA binding domain to the response element in the presence of the ligand results in activation or suppression of the gene.

4. A method for producing a polypeptide comprising the steps of:

a) selecting a cell which is substantially insensitive to exposure to a ligand of the formula:



wherein:

E is a (C_4-C_6)alkyl containing a tertiary carbon or a cyano(C_3-C_5)alkyl containing a tertiary carbon;

R^1 is H, Me, Et, i-Pr, F, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, OMe, OEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

R^2 is H, Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, OMe, OEt, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, NH-CN, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^3 is H, Et, or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^4, R^5, and R^6 are independently H, Me, Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

provided that:

a) when R^1 is Me and R^2 is OMe;

then R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, or 3,5-di-F;

b) when R^1 is Me and R^2 is OEt;

then R^3 is H and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl ;

c) when R^1 is Et and R^2 is OMe or OEt;

then R^3 is H and the combination R^4, R^5, and R^6 is:

i) 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl, 3-OMe, 2-Cl-5-Me, 2-Br-5-Me, 2-Cl, 2-Br, or 3-Me; or

ii) R^6 is H, R^4 is Me, and R^5 is Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

d) when R^1 is i-Pr;

then R^2 is OMe, or OEt; R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me;

e) when R^3 is Et;

then R^2 is H, R^1 is F or Cl, and the combination R^4, R^5, and R^6 is 3,5-di-Me;

f) when R^2 and R^3, together with the phenyl carbons to which they are attached, form an ethylenedioxy ring;

then R^1 is Me or Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

g) when R^2 and R^3, together with the phenyl carbons to which they are attached, form a dihydrofuryl or dihydropyryl ring;

then R^1 is Et and the combination R^4, R^5, and R^6 is 3,5-di-Me;

h) when R^1 is formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$:

then R^2 is OMe or OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me; and

i) when R^2 is Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H,

COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, or NH-CN;

then R^1 is Et, R^3 is H, the combination R^4, R^5, and R^6 is 3,5-di-Me;

b) introducing into the cell:

1) a DNA construct comprising:

a) an exogenous gene encoding the polypeptide; and

b) a response element;

wherein the gene is under the control of the response element; and

2) an ecdysone receptor complex comprising:

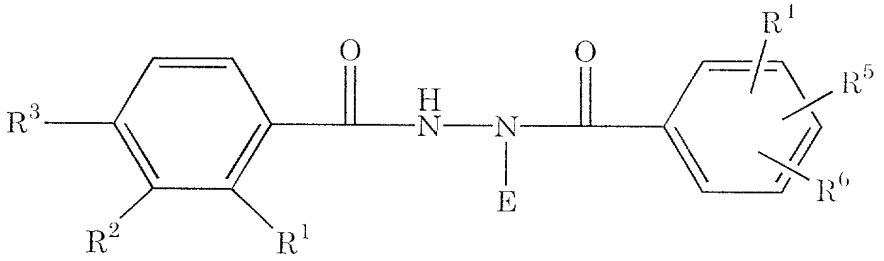
a) a DNA binding domain;

b) a binding domain for the ligand; and

c) a transactivation domain; and

c) exposing the cell to the ligand.

5. A method for regulating endogenous or heterologous gene expression in a transgenic organism comprising contacting a ligand of the formula:



wherein:

E is a $(C_4$-$C_6)$alkyl containing a tertiary carbon or a cyano$(C_3$-$C_5)$alkyl containing a tertiary carbon;

R^1 is H, Me, Et, i-Pr, F, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, OMe, OEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;

R^2 is H, Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, OMe, OEt, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, NH-CN, or joined with R^3 and the

phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^3 is H, Et, or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy, a dihydrofuryl ring with the oxygen adjacent to a phenyl carbon, or a dihydropyryl ring with the oxygen adjacent to a phenyl carbon;

R^1, R^5, and R^6 are independently H, Me, Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

provided that:

a) when R^1 is Me and R^2 is OMe;
then R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, or 3,5-di-F;

b) when R^1 is Me and R^2 is OEt;
then R^3 is H and the combination R^4, R^5, and R^6 is 3,5-di-Me, 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl ;

c) when R^1 is Et and R^2 is OMe or OEt;
then R^3 is H and the combination R^4, R^5, and R^6 is:
i) 3,5-di-OMe-4-Me, 3,5-di-Cl, 3,5-di-F, 2,4- or 2,5-di-F, 2,4- or 2,5-di-Cl, 3-OMe, 2-Cl-5-Me, 2-Br-5-Me, 2-Cl, 2-Br, or 3-Me; or
ii) R^6 is H, R^4 is Me, and R^5 is Et, F, Cl, Br, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OMe, OEt, SMe, or SEt;

d) when R^1 is i-Pr;
then R^2 is OMe, or OEt; R^3 is H; and the combination R^4, R^5, and R^6 is 3,5-di-Me;

e) when R^3 is Et;
then R^2 is H, R^1 is F or Cl, and the combination R^4, R^5, and R^6 is 3,5-di-Me;

f) when R^2 and R^3, together with the phenyl carbons to which they are attached, form an ethylenedioxy ring;
then R^1 is Me or Et and the combination R^1, R^5, and R^6 is 3,5-di-Me;

g) when R^2 and R^3, together with the phenyl carbons to which they are attached, form a dihydrofuryl or dihydropyryl ring;
then R^1 is Et and the combination R^1, R^5, and R^6 is 3,5-di-Me;

h) when R^1 is formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, OH, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, SCN, or $SCHF_2$;
then R^2 is OMe or OEt, R^3 is H, and the combination R^1, R^5, and R^6 is 3,5-di-Me; and

i) when R^2 is Me, Et, n-Pr, i-Pr, formyl, CF_3, CHF_2, $CHCl_2$, CH_2F, CH_2Cl, CH_2OH, CH_2OMe, CH_2CN, CN, C≡CH, 1-propynyl, 2-propynyl, vinyl, Ac, F, Cl, OH, O-n-Pr, OAc, NMe_2, NEt_2, SMe, SEt, $SOCF_3$, OCF_2CF_2H, COEt, cyclopropyl, CF_2CF_3, CH=CHCN, allyl, azido, OCF_3, $OCHF_2$, O-i-Pr, SCN, $SCHF_2$, SOMe, or NH-CN;
then R^1 is Et, R^3 is H, the combination R^1, R^5, and R^6 is 3,5-di-Me;

with an ecdysone receptor complex within the cells of the organism wherein the cells further contain a DNA binding sequence for the ecdysone receptor complex when in combination with the ligand and wherein formation of an ecdysone receptor complex-ligand-DNA binding sequence complex induces expression of the gene.

6. The method of Claim 2 wherein the ligand is of the specified formula and E is t-butyl; R^1 is Me, Et, i-Pr, or F; R^2 is OH, OMe, OEt, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; R^3 is H, Et or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; and R^4, R^5, and R^6 are independently Me, F, Cl, CH_2OH, or OMe.

7. The method of Claim 3 wherein the ligand is of the specified formula and E is t-butyl; R^1 is Me, Et, i-Pr, or F; R^2 is OH, OMe, OEt, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; R^3 is H, Et or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; and R^4, R^5, and R^6 are independently Me, F, Cl, CH_2OH, or OMe.

8. The method of Claim 4 wherein the ligand is of the specified formula and E is t-butyl; R^1 is Me, Et, i-Pr, or F; R^2 is OH, OMe, OEt, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; R^3 is H, Et or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; and R^4, R^5, and R^6 are independently Me, F, Cl, CH_2OH, or OMe.

9. The method of Claim 5 wherein the ligand is of the specified formula and E is t-butyl; R^1 is Me, Et, i-Pr, or F; R^2 is OH, OMe, OEt, or joined with R^3 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; R^3 is H, Et or joined with R^2 and the phenyl carbons to which R^2 and R^3 are attached to form an ethylenedioxy or dihydrofuryl ring with the oxygen adjacent to a phenyl carbon; and R^4, R^5, and R^6 are independently Me, F, Cl, CH_2OH, or OMe.

10. The method of Claim 2 wherein the ligand is of the specified formula and E is t-butyl, R^1 is Et, R^2 is OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me.

11. The method of Claim 3 wherein the ligand is of the specified formula and E is t-butyl, R^1 is Et, R^2 is OEt, R^3 is H, and the combination R^4, R^5, and R^6 is 3,5-di-Me.

12. The method of Claim 4 wherein the ligand is of the specified formula and E is t-butyl, R^1 is Et, R^2 is OEt, R^3 is H, and the combination R^1, R^5, and R^6 is 3,5-di-Me.

13. The method of Claim 5 wherein the ligand is of the specified formula and E is t-butyl, R^1 is Et, R^2 is OEt, R^3 is H, and the combination R^1, R^5, and R^6 is 3,5-di-Me.

14. The method of Claim 2 wherein the ecdysone receptor complex is a chimeric ecdysone receptor complex and the DNA construct further comprises a promoter.

15. The method of Claim 3 wherein the ecdysone receptor complex is a chimeric ecdysone receptor complex and the DNA construct further comprises a promoter.

16. The method of Claim 4 wherein the ecdysone receptor complex is a chimeric ecdysone receptor complex and the DNA construct further comprises a promoter.

17. The method of Claim 5 wherein the ecdysone receptor complex is a chimeric ecdysone receptor complex and the DNA construct further comprises a promoter.

18. The method of Claim 3 wherein the subject is a plant

19. The method of Claim 3 wherein the subject is a mammal.